

ABSTRACT OF THE DISCLOSURE

This invention provides a semiconductor device which is excellent in high-frequency characteristics, wherein emitter diffusion is performed by a trench formed in a base region, the base resistance is further reduced, and the base-emitter capacitance is also reduced. A base electrode layer makes a contact with the whole surface of the base region. A tapered trench is provided in the base region. A finer emitter region is formed by emitter diffusion from the bottom portion of the trench. Since the base electrode is formed adjacently to the trench, the distance between an active region of the base and the base electrode layer can be shortened and a larger grounded area of a base can also be obtained, therefore the base resistance can be substantially reduced. In addition, by forming a fine region, the base-emitter capacitance between the base and emitter can also be reduced, therefore a transistor excellent in high-frequency characteristics can be obtained.

TOKYO ELECTRON LTD.